ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems	)	
and Their Impact upon the	)	MM Docket No. 87-268
Existing Television Broadcast	)	
Service	)	
	)	

To: The Commission

SUPPLEMENT TO PETITION FOR RECONSIDERATION

COSMOS BROADCASTING CORPORATION

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SUMMARY

Cosmos Broadcasting Corporation ("Cosmos") hereby supplements its initial Petition for Reconsideration of the Commission's *Sixth Report and Order* in the Digital Television proceeding in accordance with the recent order allowing such supplements to the extent that they request modification of the DTV Table of Allotments. Cosmos appreciates the opportunity to provide the Commission with more thorough analysis and complete information as the Commission continues its efforts to produce the best DTV Table possible under obviously difficult conditions and constraints. Cosmos submits various meritorious requests relating to the allotment of each of its eight licensed television stations. As a general matter, Cosmos wishes to request that, because of the uncertainty surrounding the new technology and the DTV Table of Allotments, the Commission refrain from reassigning Cosmos's initial allotments until such time that field test data is available to verify the Commission's determinations regarding interference resulting from the digital broadcasts.

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COSMOS SUPPLEMENT TO PETITION FOR RECONSIDERATION

Cosmos Broadcasting Corporation ("Cosmos"), licensee of eight television stations located throughout the eastern United States, by its attorneys, and pursuant to the Commission's Order,[1/] hereby supplements its June 13, 1997, Petition for Reconsideration ("Petition") of the *Sixth Report and Order* in MM Docket No. 87-268, FCC 97-115 (released April 21, 1997) (*"Sixth R&O"*), insofar as requesting adjustments to the DTV Table of Allotments. In the Petition, Cosmos stated its belief that, by allowing interested parties a brief additional comment period to provide a more thorough analysis, the Commission could more efficiently and expeditiously fix discrete problems in the DTV Table of Allotments than by reviewing a plethora of separate rulemaking petitions and notification applications after the DTV Table became final. Cosmos appreciates the opportunity offered by the Commission, and, accordingly, Cosmos is providing herewith supplemental information regarding its stations and requests modification of their respective DTV allotments.

1/ Advanced Television Systems, *Order*, MM Docket No. 87-268, DA 97-1377 (rel. July 2, 1997).

I. GENERAL SUPPLEMENTARY REQUESTS

With respect to each of the requested modifications, Cosmos reiterates that it is prepared to modify further parameters such as power, antenna height and directionality where necessary in order to reduce harmful interference. Cosmos believes that broadcaster cooperation must be an integral part of a successful transition to digital television and is willing to make necessary changes to its proposed facilities to comport with the Commission's directives. Similarly, Cosmos hereby reiterates that, as fully described in the Petition and incorporated herein, the meritorious nature of these requested substitutions extends beyond the technical showings. Factors such as whether allotments are in the Commission's "core spectrum" and whether stations can minimize capital investment by sharing facilities or operating lower-numbered channels should surely be considered by the Commission in determining the merits of the requests.

For each of the modifications addressed here, Cosmos wishes to request that the initial allotment, as provided in the *Sixth R&O*, be reserved until such time that the new requested allotment has been fully engineered and that field test data is available to verify the interference predictions of the Commission and interested parties (*e.g.*, proposed testing with WBNS(TV) relating to the request of WTOL(TV), *infra*). Cosmos understands that the Commission will want to thoroughly analyze each requested modification given the concerns of interference "ripple," and that the Commission will be hesitant, as a general proposition, to modify the DTV Table. Accordingly, while Cosmos is convinced of the meritorious nature of its suggested modifications, because of the uncertainty of the Commission's treatment of modifications to the Table and the uncertainty associated with any new

technology, Cosmos respectfully requests that if the Commission grants the modification requests, the Commission refrain from reassigning the initial allotments until sufficient field test data has been collected to verify predicted results.

Additionally, for each of Cosmos's stations, regardless of whether the requested modification is granted, Cosmos additionally requests that the Commission allow maximization of its DTV allotments. Maximization would optimize spectrum use and ensure that the highest numbers of viewers have access to digitally broadcast television.

II. ALLOTMENT ADJUSTMENTS

A. WTOL(TV) — Toledo, Ohio

Under the DTV Table of Allotments proposed in the *Sixth R&O*, Cosmos station WTOL(TV), operating on NTSC Channel 11, will receive a substantial amount of destructive interference — the majority of which is inside the Toledo DMA — from a co-channel DTV assignment of WBNS(TV) in Columbus, Ohio. In the Petition, Cosmos described the interference and requested that WBNS(TV) be assigned a new DTV allotment.[2/] An Opposition to the Petition was filed on behalf of WBNS(TV), asserting that Cosmos had not adequately described its analytical methodology and that the methodology was inconsistent with Longley-Rice.[3/] Cosmos replied with an updated analysis that was based upon Longley-Rice and in accordance with information from *OET Bulletin No. 69* which had been released in the interim.[4/] A copy of that analysis, demonstrating the extent of the interference to

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2/ Petition at 4-7.

3/ Dispatch Opposition at 1.

4/ Cosmos Reply to Dispatch at 2.

WTOL(TV) that will be caused by WBNS(TV), is provided in Attachment A. WTOL(TV) is expected to lose some 20,635 households within its DMA alone due to the predicted co-channel interference of WBNS(TV).

WBNS(TV) has received experimental authorization from the Commission to operate its DTV channel.[5/] In its application, WBNS(TV) contended that the experimental use would not create interference to WTOL(TV) and other stations.[6/] Cosmos believes that WBNS(TV)'s DTV transmissions will indeed generate a substantial amount of harmful interference if operated as contemplated by the Commission in the *Sixth R&O*. Cosmos has consistently maintained its commitment to cooperation among broadcasters to resolve disputes and achieve technical solutions, and Cosmos will treat this issue no differently. Accordingly, Cosmos is providing in Attachment A a copy of the proposed Test Plan with WBNS(TV) that has been previously reviewed by the station. The Test Plan provides the framework for shared testing and information gathering that will, hopefully, generate tangible evidence regarding the DTV broadcasts.

Nevertheless, Cosmos wishes to reiterate that the Commission could save the parties from expending further efforts to resolve this matter by assigning WBNS(TV) an alternate digital allotment or establishing parameters for WBNS(TV) so that the digital transmissions would not interfere with WTOL(TV)'s established NTSC broadcasts.

5/ Granted by letter, June 16, 1997. Application file number BPEXT-970225KE.

6/ WBNS-TV, Inc., Application for Experimental Authorization, Technical Statement at 4.

B. WFIE(TV) — Evansville, Indiana

WFIE(TV) has two requests. First, WFIE(TV) requests that WTIU be assigned a DTV channel which does not interfere with the coverage of the existing NTSC operations of station WFIE(TV). As shown in the technical exhibit ("Attachment B"), the allotment violates the Commission's own separation standards and is expected to create interference over a 260 square kilometer region, affecting some 2,750 persons.

Secondly, WFIE(TV) requests that the Commission reassign its DTV channel to 46 instead of the assigned 58. This reassignment would produce short spacing with three vacant commercial NTSC allotments. Attachment B, however, shows that these vacant allotments should not prevent the reassignment.

It should be noted that the current DTV allotment of Channel 58 has a short spacing problem with WFTE(TV) in Salem, IN, of over 60 kilometers. The reassignment would obviously avoid the interference concerns associated with such short spacing.

For the reasons stated here and in the technical exhibit, Cosmos asks that the Commission grant these requests.

C. WIS(TV) — Columbia, South Carolina

WIS(TV) broadcasts on NTSC Channel 10 and was allotted DTV Channel 41. As initially described in the Petition, WIS(TV) requests that it be reassigned DTV Channel 11.[7/] The technical exhibit ("Attachment C") demonstrates that the proposed assignment would satisfy Section 73.623(d)'s requirements except for three stations: (1) co-channel WTOC(TV) in Savannah, GA; (2) co-channel WTVD(TV) in Durham, NC; and (3) adjacent-channel

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7/ Petition at 9-10.

WRDW(TV) on Channel 12 in Augusta, GA. As demonstrated in Attachment C, however, the new interference created by the proposal would have minimal impact.

With respect to WTOC(TV), the proposed reassignment will result in short spacing of only 35 kilometers and is expected to create new interference affecting some 2.4% of WTOC(TV)'s service area population. The affected population would not lose their network service, however, as they remain totally encompassed by the Grade B coverage contours of other stations with the same network affiliation as WTOC(TV). Moreover, as shown in the statement of the manager in Attachment C, cable penetration in the affected counties averages 73%.

Similarly, populations in the Durham, NC, market would only be slightly impacted by the proposed reassignment. WTVD(TV) would be short spaced a mere 7.8 kilometers. The population that would be affected by the new interference represents 2.6% of those in WTVD(TV)'s coverage area. Again, much of the affected area is located within the Grade B contours of other stations with the same network affiliation as WTVD(TV), and cable penetration in the affected counties is 50%.

WRDW(TV) in Augusta, GA would be short spaced at 18 kilometers, with the new interference expected to affect 5.1% of the station's population. All of those affected by the new interference are in areas encompassed by the Grade B contour of WTLX(TV) in Columbia, SC, which has the same network affiliation as WRDW(TV). As shown in the Manager's statement, only 0.2% of the actual viewing audience would be affected by the proposal.

As demonstrated, the proposed reassignment would have only a minimal impact on the viewing audience. It is believed that the impact would be less than for many of the Commission's allotments as designated in the *Sixth R&O* For these reasons, Cosmos believes that the Commission should pair Channel 11 to WIS(TV) for its DTV transmissions.

D. WSFA(TV) — Montgomery, Alabama

WSFA(TV) broadcasts on NTSC Channel 12 and was paired DTV Channel 57. As initially described in the Petition, WSFA(TV) requests that it be reassigned DTV Channel 11.[8/] The technical exhibit ("Attachment D") demonstrates that the proposed assignment would satisfy Section 73.623(d)'s requirements except for three co-channel stations: (1) WFSU(TV) in Tallahassee, FL; (2) WTOK(TV) in Meridian, MS; and (3) WXIA(TV) in Atlanta, GA. As demonstrated in Attachment D, however, the new interference created by the proposal would have minimal impact.

With respect to WFSU(TV), the proposed reassignment would result in short spacing of 41 kilometers and expected to create new interference affecting some 6.6% of WFSU(TV)'s service area population (taking into account service provided by WFSU(TV)'s satellite station WFSG(TV)). As shown in the statement of the Station Manager in Attachment D, because of the low number of WFSU(TV)'s viewers in the affected areas, merely 0.2% of WFSU(TV)'s actual viewership would be affected by the proposed reassignment.

Similarly, populations in the Meridian, MS, market would only be slightly impacted by the proposed reassignment. WTOK(TV) would be short spaced by 32 kilometers. The

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8/ Petition at 11.

population affected by the new interference represents 4.2% of those in WTVD(TV)'s coverage area. Again, as shown in the Station Manager's statement, because of the low number of WTOK(TV)'s viewers in the affected areas, only 1.2% of WTOK(TV)'s actual viewership would be affected by the proposed reassignment.

WXIA(TV) in Atlanta, GA would be short spaced at 12 kilometers with the proposed reassignment, and the new interference is expected to affect only 0.6% of the WXIA(TV)'s population. Many of the small number affected by the proposal would be covered by the Grade B contours of other stations having the same network affiliation.

As demonstrated, the proposed reassignment would have only a minimal impact on the viewing audience. For these reasons, Cosmos believes that the Commission should pair Channel 11 to WSFA(TV).

E. KAIT(TV) — Jonesboro, Arkansas

In the *Sixth R&O*, the Commission proposed to allocate Channel 58 as KAIT(TV)'s paired DTV channel. KAIT(TV) currently broadcasts on NTSC Channel 8. Cosmos requests that the Commission reassign Channel 9 to KAIT(TV) as its DTV allotment. As shown in the technical exhibit ("Attachment E"), Channel 9 would meet Section 73.623(d)'s separation requirements except with respect to station WKNO(TV), Memphis, TN (NTSC operations on adjacent Channel 10). Cosmos believes, however, that the effect of the minimal interference posed by KAIT(TV)'s DTV broadcasts on Channel 9 is so negligible that the Commission would construe the adjacent-channel interference to be *de minimis*.

As stated in Attachment E, WKNO(TV), an educational broadcast station, would be short-spaced with KAIT(TV) by some 16.7 kilometers, resulting in new interference to 27.4

square kilometers containing a total of 127 people. This represents 0.01% of the existing WKNO(TV) population. The 127 individuals who would be unable to watch the educational broadcasts from the Tennessee station would continue to receive service from the educational broadcasts of KTEJ(TV), Channel 19, Jonesboro, AR. Furthermore, as demonstrated in the statement of the Manager (also in Attachment E), according to recently released Nielsen studies for the county experiencing the largest part of the predicted interference, in peak viewing periods, WKNO(TV) has a viewing audience of zero households while KAIT(TV) viewing reaches over 2,700 households, indicating that practically no households would be affected by the proposed modification while many would benefit. Meanwhile, in the same area and for the same time period, KTEJ(TV)'s educational broadcasts are viewed by 152 households. Hence, the households in the affected area which are viewing educational broadcasts during peak periods are entirely tuned to the Arkansas station, and not the out-of-state broadcasts of WKNO(TV).

Additionally, it should be noted that if KAIT-TV were to transmit digital broadcasts on Channel 58 as currently allotted, it would be short spaced to three proposed stations: two pending applications for an educational Channel 56 allotment in Memphis and Channel 58 at Kennett, MO. Furthermore, the added expenses of operating the UHF-DTV station as they affect small-market broadcasters such as KAIT(TV) could be staggering.

Cosmos believes that, for the reasons set forth above, the Commission should consider the adjacent-channel interference created by DTV operation on Channel 9 to be *de minimis*. Essentially no households would be affected by the proposal and none would lose access to in-state educational broadcasts.

F. KPLC(TV)—Lake Charles, Louisiana

KPLC(TV) currently broadcasts on NTSC Channel 7. The Commission proposed to allocate Channel 53 as KPLC(TV)'s paired DTV channel in the *Sixth R&O*, and Cosmos petitioned to substitute Channel 8.[9/] The technical exhibit ("Attachment F") demonstrates that the proposed reassignment would satisfy the Commission's spacing requirements except with respect to two stations: 1) KNOE(TV) in Monroe, LA; and 2) KUHT(TV) on Channel 8 in Houston, TX. Cosmos believes that, as demonstrated in Attachment F, the new interference that would be produced by the proposed reassignment would have minimal impact.

With respect to KNOE(TV), the proposed reassignment would result in short spacing of 55 kilometers and create new interference affecting 9.8% of KNOE(TV)'s geographic Grade B service contour. However, much of this area is outside of the Monroe DMA, and the small affected areas inside the DMA are undeveloped federal property. As shown in the statement of the Station Manager in Attachment F, actual viewership of KNOE(TV) in the affected regions outside of the Monroe DMA is "grossly subordinate" to same-network affiliates in nearby Lafayette, LA or Shreveport, LA. Lastly, assuring that viewers would be able to receive transmissions from a station to the south of the affected areas would be in the public interest. A station to the south, such as KPLC(TV), would have the most up-to-date weather tracking and warning systems to assist viewers in an area subject to hurricanes and tropical storms (which typically move from south to north in this region).

9/ Petition at 12-13.

KUHT(TV) would be short spaced by 16.5 kilometers to the proposed reassignment. The population affected by the new interference represents only 0.3% of those in WTVD(TV)'s coverage area. It should be noted that in preliminary discussions with KUHT(TV), the station indicated that it would not oppose Cosmos's proposed reassignment if KPLC(TV) agreed to return to its current NTSC allotment after the DTV transition period.

Cosmos wishes to emphasize the importance of capital cost-reduction to small-market stations such as KPLC(TV). The expense of operating *UHF*-DTV broadcasts, in addition to the roll-out costs of digital television, may be staggering when compared with the savings allowed by co-located facilities and the less-expensive VHF operation.

For these reasons, Cosmos requests that the Commission substitute Channel 8 to KPLC(TV) for its digital broadcasts.

G. WLOX(TV) — Biloxi, Mississippi

WLOX(TV) seeks to maximize the ERP and increase the HAAT to 561 meters. The net effect of this requested modification is a *reduction* in total interference. As explained in the attached technical exhibit ("Attachment G"), the proposed increase in power would act to decrease interference from nearby WHLT(TV), the only station short spaced to WLOX(TV). This is because the increase in power would improve coverage in locations close to the WLOX(TV) tower. WHLT(TV) operates on Channel 22 in Hattiesburg, MS. For these reasons, and as fully described in the technical exhibit, Cosmos seeks the requested modifications to WLOX(TV)'s facilities.

H. WAVE(TV) — Louisville, Kentucky[10/]

As shown in the technical exhibit ("Attachment H"), Cosmos wishes to relocate the transmitter site for WAVE(TV) to the coordinates listed therein, or in the vicinity of those coordinates, if after experience is gained from actual DTV broadcasts, WAVE(TV) experiences harmful interference. Cosmos is concerned that new interference during the transition may require that WAVE(TV) move its transmitter closer to its city of license. The proposed relocation would satisfy the Commission's spacing requirements[11/] and would not be expected to create new interference. Cosmos stresses that, while it has sufficient evidence to raise concerns about new interference, if after actual experience is gained, Cosmos finds that their current tower location is adequate, it would not necessarily seek to relocate. For example, Cosmos is uncertain of how well receivers can obtain signals in light of adjacent-channel interference. Consequently, Cosmos simply requests that it have the right to relocate its tower to the listed coordinates (or nearby) and remedy the potential interference, subject to actual field test results.

10/ While Cosmos made no request with respect to WAVE(TV) in its initial petition, Cosmos did ask generally for an extended period to analyze the DTV Table of Allotments after the Commission released *OET Bulletin No. 69*. Thus, Cosmos asserts standing to submit this supplemental request on behalf of WAVE(TV).

11/ Section 73.623(d).

Conclusion

For the reasons described herein, and in the attached exhibits and statements, Cosmos asks that the Commission grant the requested modifications to the DTV Table of Allotments. Cosmos believes that each request is meritorious, generating substantial benefits to Cosmos and its viewers while creating little negative impact on its fellow broadcasters.

Respectfully submitted,

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Dated: August 22, 1997

ATTACHMENT A

WTOL(TV)—Toledo, Ohio

1. Technical Exhibit from Reply of Cosmos, filed July 31, 1997.
2. Proposed Test Plan with WBNS(TV)

PROPOSED TEST PLAN
CHARACTERIZING INTERFERENCE TO WTOL-TV NTSC FACILITY
FROM WBNS-TV CO-CHANNEL DTV FACILITY

The purpose of this test plan is to provide a method to characterize the interference occurring to the existing NTSC operation of WTOL-TV from the WBNS-TV experimental DTV facility. If the levels of interference initially indicate no harmful interference (Stage One Test), further evaluation will be completed to characterize the interference area (Stage Two Test). The interference assessment is based on subjective evaluation of the received picture images based on the five-point categorical impairment scale (Table 1), defined in Recommendation ITU-R BT.500-7, *Methodology for the Subjective Assessment of the Quality of Television Pictures*.

Scale	Impairment
5	Imperceptible
4	Perceptible, but not annoying
3	Slightly annoying
2	Annoying
1	Very annoying

Table 1. Picture Impairment Scale

WBNS-TV DTV Facilities

WTOL-TV agrees with the proposed WBNS-TV DTV facilities as recently granted by the Commission in an experimental authorization, contingent upon the successful completion of the Trial One test discussed below. WTOL-TV is also unopposed to the use of the higher DTV effective radiated power by WBNS-TV, up to the FCC authorized power. However, a new Trial One test with the maintaining of the WTOL-TV right to terminate the test if harmful interference is observed, would have to be completed with the higher DTV effective radiated power.

Trial One Test

To initially determine if interference to WTOL-TV from the WBNS-TV DTV operation is not harmful, ninety percent or more of the WTOL-TV picture observations will not indicate an impairment grade decrease due to DTV interference. A total of fifty observations will be made within the WTOL-TV service area during the Trial One Test. Most of the observations, made at random locations, will occur within the Longley-Rice predicted interference area. Each location will have WTOL-TV picture quality observations with and without the WBNS-TV DTV facility in operation. If more than five of the observation locations (or more than ten percent) indicate a decrease of one or more on the picture impairment scale, the interference will be considered harmful and the WBNS-TV DTV testing will immediately cease.

Trial Two Test

If no harmful interference is determined from the Trial One test, extensive picture observations and field strength analysis will occur within and near the predicted interference area. Each test will include measuring the desired (WTOL-TV) and undesired (WBNS-TV DTV) field strengths.

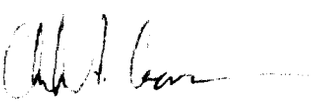
The subjective picture quality observations, as described above in Trial One, will also be completed at each location. The test locations will occur at periodic intervals along a grid. If interference is observed, additional measurements at closer periodic intervals will be made until such interference is no longer observed.

The field strengths for the desired and undesired stations will be determined at each test location using both the mobile-run method described in Section 73.686 in the Commission's Rules and at a stationary position. The mobile-run field strength measurements will characterize the multipath variability for each station. Also, by correlating the instantaneous received desired and undesired field strengths over the one hundred-foot run at each location, the desired-to-undesired ratio can be derived for any one point. The stationary position, located at the exact location of the respective picture observation, will determine the desired-to-undesired ratio using the signals of opportunity.

The field strengths received during both the one hundred-foot mobile run and the stationary position will be obtained separately for the desired and undesired stations with a calibrated receiving antenna elevated thirty-feet

above ground level. The use of a test measurement vehicle, such as the MSTV DTV test van, will be employed at each location. The WBNS-TV DTV facility will not be radiating during the WTOL-TV field strength acquisition period. The use of a calibrated log-periodic receiving antenna, with a large front-to-back ratio, may be required for the test to discriminate the reception of the desired station (WTOL-TV) during the undesired field strength acquisition.

During the testing process, WTOL-TV may modify the above test procedures to add or eliminate procedures. The modification(s), if necessary, will be done to further increase the characterization of the interference or delete procedures that offer no additional value.



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August 20, 1997

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TECHNICAL EXHIBIT
COSMOS BROADCASTING CORPORATION
STATION WTOL-TV
TOLEDO, OHIO

Technical Statement

The technical exhibit consisting of this statement and the attached Figure 1 was prepared on behalf of Cosmos Broadcasting Corporation, licensee of television station WTOL-TV at Toledo, Ohio. This exhibit supports a response to the reply comments in the Petition for Partial Reconsideration recently filed by Cosmos as part of the Federal Communications action in MM Docket No. 87-268, *In the Matter of Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service*, Sixth Report and Order, herein "Sixth Report." In particular, Cosmos is replying to the comments submitted by WBNS-TV on Channel 10 at Columbus, Ohio.

The WBNS-TV comments allege that the interference prediction methodology used by Cosmos within the petition was not fully described and also inappropriate for DTV interference calculations. The Cosmos petition stated that a large amount of interference would occur to WTOL-TV within the Toledo Designated Market Area (DMA) and Grade B contour from the proposed [illegible] Channel DTV operation of WBNS-TV.

When the interference analysis for WTOL-TV was initially calculated, OET Bulletin 69 that describes the evaluation of DTV coverage and interference had not been released. Since the Commission has subsequently released the Bulletin, an interference analysis, similar to the Commission's procedure used in the Sixth report, can now be completed for WTOL-TV.

Shown on Figure 1 is the WTOL-TV Grade B contour, the Toledo DMA and the predicted interference areas to WTOL-TV from the WBNS-TV DTV assignment. As can be seen from the map, interference to WTOL-TV from WBNS-TV is predicted over an area of 2,100 square kilometers encompassing 69,900 persons within the WTOL-TV Grade B coverage contour.[1] An interference area of 1,750 square kilometers, or 13.2 percent, encompassing 56,300 persons, or 5.5 percent, is predicted within the Toledo DMA and WTOL-TV Grade B contour.[2] This also represents a loss of approximately 17,635 television households within the DMA.

The interference to WTOL-TV by WBNS-TV on DTV channel 11 can be eliminated. The WBNS-TV effective radiated power, in the direction of WTOL-TV, would have to be decreased 25 dB below the assigned WBNS-TV DTV power to satisfy the Commission's +34 dB desired-to-undesired ratio. Figure 2 is a polar plot showing the relative field values for both the WBNS-TV DTV directional antenna as proposed by

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[1] The 1990 U.S. Census population data was employed for all calculations.

[2] The Toledo DMA has a population of 1,094,352 persons with a land area of 15,542 square kilometers of which the WTOL-TV Grade B coverage contour provides service to 93.8 percent of the DMA population and 85.1 percent of the DMA area.

the Commission in the Sixth Report (solid line) and the directional pattern required to provide protection to WTOL-TV (dashed line).[3] As can be seen from Figure 2, a null to the depth of 25 dB in the WBNS-TV transmitting antenna would be necessary to prevent predicted interference from being caused to WTOL-TV. The directional antenna is pattern is assumed to have a 5 dB per ten-degree rise from the null.

The interference prediction method employed for the herein calculations are based on the Commission's OET Bulletin 69 and the software provided by the Commission. The terrain elevations and the associated Longley-Rice field strength values are calculated at one-kilometer intervals for both the desired and undesired stations with an assumed receiver antenna elevated 9.1 meters above ground level.[4] The Longley-Rice interference calculations were based on 50 percent of the time, 50 percent of the locations and 50 percent confidence for the desired station, WTOL-TV, and 10 percent of the time, 50 percent of the locations and 50 percent confidence for the undesired station, WBNS-TV. A desired to-undesired interference ratio of +34 dB was employed with consideration to the off-axis receiving antenna discrimination, where pertinent. An analog receiver antenna radiation pattern with azimuthal discrimination calculated as the fourth power to the cosine of the angle between the desired and undesired stations with a maximum front-to-back ratio of 4 dB was employed. The Commission's recommendation of the appropriate input

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[3] du Treil, Lundin & Rackley, Inc. in Reply Comments submitted in the Sixth Report discussed the directional antenna patterns assigned to every DTV allotment

[4] The ground elevations were retrieved from the three-second terrain database.

parameters of the Longely-Rice propagation model were also used.

The WBNS-TV DTV directional transmitting antenna pattern and maximum effective radiated power of 14 kilowatts was obtained from the Commission's engineering database. The transmitting antenna height above average terrain of 271 meters and the transmitter location at the WBNS-TV licensed NTSC site was employed.

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July 29, 1997

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